

7.  $f(x) = x+3$  일 때  $f \circ f$ ,  $f \circ f \circ f$  을 각각 구하라.

$$(1) f(f(x))$$

$$= f(x+3)$$

$$= x+6$$

$$(2) f(f(f(x)))$$

$$= f(f(x+3))$$

$$= f(x+6)$$

$$= x+9$$

8.  $f(x) = x+1$ ,  $g(x) = 3-x$  일 때 다음을 계산하라

$$(1) f^{-1}(1)$$

$$= 1-1$$

$$= 0$$

$$f^{-1}(1) = t$$

$$\Leftrightarrow f(t) = 1$$

$$t+1=1 \Rightarrow t=0$$

$$(2) g^{-1}(2)$$

$$= -2+3$$

$$= 1$$

$$g^{-1}(2) = s$$

$$\Leftrightarrow g(s) = 2$$

$$3-s=2 \Rightarrow s=1$$

$$(3) (f \circ g)^{-1}(3)$$

$$= g^{-1}(f^{-1}(3))$$

$$= g^{-1}(2)$$

$$= 1$$

$$f^{-1}(3) = a$$

$$\Leftrightarrow f(a) = 3$$

$$\Rightarrow a+1=3$$

$$\Rightarrow a=2$$

$$(4) (f \circ f \circ f)(1)$$

$$= f(f(f(1)))$$

$$= f(f(2))$$

$$= f(3)$$

$$= 4$$

$$D) y = x+1 \Rightarrow x = y+1 \Rightarrow y = x-1 = f^{-1}(x) = x-1$$

$$E) y = 3-x \Rightarrow x = 3-y \Rightarrow y = -x+3 = g^{-1}(x) = -x+3$$

$$g^{-1}(f^{-1}(3)) = g^{-1}(2) = 1$$

$$g^{-1}(3) = 0$$